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| EXAMINER | |
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| DAVENPORT, MON CHERI S | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/612,141 | JANG ET AL. | |
| | Examiner | Art Unit | |
| | MON CHERI S. DAVENPORT | 2616 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *4/28/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-6 and 8-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2, 4-6, and 8-13* is/are rejected.

7)☒ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 4, 5, and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Paul et al. (Reliable Multicast Transport Protocol (RMTP)) in view of Jonsson et al. ( 6,970,476) .

3. **Claims 4, 5, and 12** rejected under 35 U.S.C. 102(b) as being anticipated by Paul et al. (Reliable Multicast Transport Protocol (RMTP))

Regarding **claim 4** Paul et al. discloses a multicast data retransmission method used in a system that retransmits multicast packets by using a wireless terminal and an access point, the multicast data retransmission method comprising the steps of:

(a) receiving from the access point information on a group which the wireless terminal belongs to***(see Paul et al., page 409, paragraph 2, RMTP groups receivers into local regions and uses a DR as a representative of the local region)*** ;

(b) if the wireless terminal is selected as a repeater that is to retransmit the multicast packets, receiving information from the access point about the order in which repeaters retransmit the multicast packets ***( see Paul et al., page 409, column 1, paragraph 2, RMTP provides sequenced, lossless delivery of bulk data from one sender to a group of receivers. The sender ensures reliable delivery by selectively retransmitting lost packets in response to the retransmission request of the receiver.);*** and

(c) receiving a retransmission command from the access point and retransmitting the multicast packets to other wireless terminals, ***(see Paul et al., page 409, paragraph 2, only the DR's send their own status to the sender indicating which packets they have received and which packets they have not received. The receivers in a local region send their status to the corresponding DR, see also page 410, paragraph 3( section A. overview), S ( access point) determines which packets are to be retransmitted , and the packets are multicasted globally by S )***

However Paul et al. fails to specifically point out retransmitting irrespective of whether the wireless terminals receive the multicast packets as claimed.

Jonsson et al. teaches retransmitting irrespective of whether the wireless terminals receive the multicast packets (see col. 3, lines 10-14, sending redundant context updates ( multicast packets before context invalidation is detected).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to combine Paul et al. invention with Jonsson et al. invention because Jonsson et al. allows transmission parameters to be controlled appropriately to improve the chances for delivery( see Jonsson et al. col. 3, lines 15-17).

Regarding **claim 5**, Paul et al. in view of Jonsson et al. discloses everything claimed as applied above (*see claim 4*) In addition the method includes:

wherein step (b) further comprises the step of, if the wireless terminal is not selected as the repeater, receiving the retransmitted multicast packets and discarding the retransmitted multicast packets if the multicast packets have already been received without a packet error ***( see***

***Paul et al., page 413, column 2, paragraph 6, if DR selected by a set of receivers fail, then the same set of receivers will choose the DR least upstream from the failed DR as the new AP(Access point).***

Regarding **claim 12**, Paul et al. in view of Jonsson et al. discloses everything claimed as applied above (*see claim 4*) In addition:

A computer readable medium having embodied thereon a computer program for the multicast data retransmission method of claim 4(***(see Paul et al., page 415, paragraph 3, a multicast delivery system at user level using Mbone technologies, Mbone routers use IP tunnels to forward multicast packets to IP routers that cannot handle multicast packets)***.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1-2 and 11** rejected under 35 U.S.C. 103(a) as being unpatentable over by Paul et al. (Reliable Multicast Transport Protocol (RMTP)) in view of Toshimitsu et al. ( US Patent Application Publication 2002/0021684) further in view of Jonsson et al..

Regarding **Claim 1** Paul et al. discloses a multicast data retransmission method, comprising the steps of:

(a) grouping wireless terminals based on distances between an access point and the wireless terminals ***(see Paul et al., page 413, column 2, paragraph 3-4, Choice of***

***DR(designated receiver) and formation of local regions: each receiver chooses a DR that is nearest to it in terms of number of hops, effectively a local region is defined) ;***

(b) selecting a repeater **(designated receiver)** to retransmit multicast packets from each group***( see Paul et al., page 413, column 2, paragraph 3-4, Choice of DR(designated receiver) and formation of local regions: each receiver chooses a DR that is nearest to it in terms of number of hops, see page 407, paragraph 1, lines 5-10, designated receivers (DR) which is responsible for retransmitting lost packets to the corresponding receivers)***and arranging the order in which repeaters retransmit multicast packets***(see Paul et al., page 408, column 1, paragraph 3, the function of RMTP is to deliver packets from the sender to the receivers in sequence along the multicast tree)***;

Paul et al. discloses (c) creating a multicast packet train header indicating characteristics of each of the multicast packets ***(see Paul et al., page 410, column 1, paragraph 4, the sender in RMTP divides the data to be transmitted into fixed-sized data packets, see Table 1(RMTP Packet types), page 410);***

Paul et al. discloses (d) multicasting each of the multicast packets including the created multicast packet train header ***(see Paul et al., page 410, column 1, paragraph 3, lines 6-7, S multicast a window of data packets to all receivers using the global multicast tree***); and

Paul et al. discloses e) retransmitting the multicast packets in the order arranged in step (b), irrespective of whether the wireless terminals receive the multicast packets ***(see Paul et al., page 414, column 1, paragraph 2, DR's retransmit lost packets to the receivers in there respective local regions, see also page 410, paragraph 3(section A. overview), S (access point)***

***determines which packets are to be retransmitted, and the packets are multicasted globally by S).***

However Paul et al. fails to specifically point out grouping wireless terminals based on amplitudes of signals output from the wireless terminals as claimed.

Toshimitsu et al. disclose grouping wireless terminals based on amplitudes of signals output from the wireless terminals (see [0113], lines 1-2, grouping of radio terminals according to their weights (signal amplitudes), see also [0040], lines 6-8, and weights is amplitude weighted).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to combine Paul with Toshimitsu et al. because this assures that packets are multicast reliable.

However Paul et al. in view of Toshimitsu et al. fails to specifically point out retransmitting irrespective of whether the wireless terminals receive the multicast packets as claimed.

Jonsson et al. teaches retransmitting irrespective of whether the wireless terminals receive the multicast packets (see col. 3, lines 10-14, sending redundant context updates (multicast packets before context invalidation is detected).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to combine Paul et al. in view of Toshimitsu et al. invention with Jonsson et

al. invention because Jonsson et al. allows transmission parameters to be controlled appropriately to improve the chances for delivery( see Jonsson et al. col. 3, lines 15-17).

Regarding **Claim 2**, Paul et al. discloses everything claimed as applied above (*see claim 1*) In addition the method includes:

wherein step (b) further comprises the step of selecting a wireless terminal, which outputs a signal with the greatest amplitude , as the repeater **(DR)** from each group by determining a status of a channel of the wireless terminal based on the amplitude of signal output from the wireless terminal ***( see Paul et al., page 413, column 2, paragraph 4-6, each DR as well as the sender periodically sends a special packet , called the SEND_ACK_TOME packet which includes a TTL(time-to-live field), it will have then chosen the DR nearest to it in terms of number of hops).***

However Paul et al. fails to specifically point out selecting a wireless terminal, which outputs a signal with the greatest amplitude, as the repeater, and determining a status of a channel of the wireless terminal based on the amplitude of signal output from the wireless terminal as claimed.

Toshimitsu et al. disclose grouping wireless terminals based on amplitudes of signals output from the wireless terminals (see [0113], lines 1-2, grouping of radio terminals according to their weights (signal amplitudes), see also [0040], lines 6-8, and weights is amplitude weighted).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to combine Paul et al with Toshimitsu et al. because the DR (repeater) entity

is a combination of sender entity and receiver entity, key functions are performed, therefore the transceiver that obtains the highest quality resources should be chosen as the repeater (see Paul et al. pg. 41, col. 2, paragraph 3, lines 1-3).

Regarding **claim 11**, Paul et al. discloses everything claimed as applied above (*see claim 1*) In addition:

A computer readable medium having embodied thereon a computer program for the multicast data retransmission method of claim 1 (see Paul et al., page 415, paragraph 3, a multicast delivery system at user level using Mbone technologies, Mbone routers use IP tunnels to forward multicast packets to IP routers that cannot handle multicast packets).

6. **Claim 6, 8, 9 and 13,** rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (European Patent Application Number 01303442.6) in view of Paul et al. (Reliable Multicast Transport Protocol (RMTP)).

Regarding **Claim 6** Sato et al. discloses a multicast data retransmission method, comprising the steps of:

(a) grouping wireless terminals based on distances between an access point and the wireless terminals ***(see Sato et al., page 3, paragraph [0021], grouping radio terminals in the service area)*** and amplitudes of signals output from the wireless terminals ***(see Sato et al., page 3, column 4, paragraph [0022], retransmission control method configured basis of quality of communications between the information delivery apparatus and each of the radio terminals)***; an

(b) selecting a repeater to retransmit multicast packets from each group and retransmitting the multicast packets ***(see Sato et al., page 3, column 3, lines 20-22, determining at least one radio terminal permitted to be placed in retransmission control)***.

wherein step (b) further comprises the steps of:

(b 1) selecting a wireless terminal which outputs a signal with the greatest amplitude as the repeater by determining a status of a channel of the wireless terminal based on the amplitude of signal output from the wireless terminal***( see Sato et al. , page 3, column 3, paragraph [0016], determining at least one radio terminal permitted to be placed in retransmission control,)(paragraph [0022], the retransmission control method configured on the basis of a quality of communication( greatest amplitude) between the information delivery apparatus and each of the radio terminals, );***

Sato et al. fails to specifically disclose determining the order in which repeaters retransmit the multicast packets and repeating in the order.

Paul et al. discloses (b2) determining the order in which repeaters retransmit the multicast packets ***(see Paul et al., page 408, column 1, paragraph 3, the function of RMTP is to deliver packets from the sender to the receivers in sequence along the multicast tree)***; and

(b3) transmitting a retransmission command to the repeaters in the Order in which the repeaters retransmit the multicast packets***(see Paul et al., page 414, column 1, paragraph 2, DR's retransmit lost packets to the receivers in there respective local regions)***.

Therefore, it would have been obvious to a person having ordinary skilled in the art at the time the invention was made to provide Sato et al. with determining the order and repeating in the order because this make the retransmission method more reliable.

Regarding ***claim 8*** Sato et al. discloses an apparatus for multicast data retransmission, the apparatus comprising ***(see Sato et al., figure 5)***:

a grouping unit which groups wireless terminals based on distances between the wireless terminals ***( see Sato et al., page 3 , paragraph [0021], grouping radio terminals in the service area,*** and amplitudes of signals output from the wireless terminals ***(Sato et al. Figure 5, element 25, retransmission permitted –terminal determining unit)***;

a repeater selecting and retransmission order arranging unit which selects the repeater to retransmit the multicast packets from each group( see [0022], a retransmission control, determines ( selects a radio terminal ( repeater ) on the basis of quality of communication to delivery information to the radio terminals), (***Sato et al., Figure 5, element 24, information delivery control unit, performs a control to retransmit multicast information, see [0038], the information delivery control unit controls what and how the packets are multicast, the multicast information is stored in the memory unit under the control of element 24)*** ;

a multicast packet train header creating unit which creates a multicast packet train header before the multicast packets are multicasted ***( Sato et al. , Figure 5, element 22, multicast information memory unit, see [0038], the multicast information is stored in the memory unit under the control of element 24)) ;***

a multicast packet train header transmitting unit which transmits the created multicast packet train header to all wireless terminals***(Sato et al. , Figure 5, element 21,Transmitter / receiver)***; and

a retransmitting unit which retransmits the multicast packets in the order arranged by the repeater selecting and retransmission order arranging unit, after the multicast packet train header transmitting unit multicasts the multicast packet train header(***Sato et al., Figure 5, element 24, information delivery control unit, performs a control to retransmit multicast information)***.

Sato et al. fails to specifically disclose arranging the order in which repeaters retransmit the multicast packets and repeating in the order.

Paul et al. discloses arranging the order in which repeaters retransmit the multicast packets ***(see Paul et al., page 408, column 1, paragraph 3, the function of RMTP is to deliver packets from the sender to the receivers in sequence along the multicast tree)***; and

transmitting a retransmission command to the repeaters in the order in which the repeaters retransmit the multicast packets***(see Paul et al., page 414, column 1, paragraph 2, DR's retransmit lost packets to the receivers in there respective local regions)***.

Therefore, it would have been obvious to a person having ordinary skilled in the art at the time the invention was made to provide Sato et al. with determining the order and repeating in the order because this make the retransmission method more reliable.

Regarding **claim 9**, Sato et al. in view of Paul et al. discloses everything claimed as applied above (*see claim 8*) In addition the apparatus includes:

wherein the retransmitting unit transmits the retransmission command to a repeater, which is first to retransmit the multicast packet, and transmits the retransmission command to a repeater which is second to retransmit the multicast packet***( see Sato et al. , page 3, column 4, paragraph [0027], a first unit determining at least one radio terminal permitted to be placed in retransmission control ; and a second unit delivering , when a request for retransmitting the multicast information sent by the above mentioned at least one radio terminal is received, the multicast information to the radio terminals).***

Regarding **claim 13**, Paul et al. discloses everything claimed as applied above (*see claim 6*) In addition:

A computer readable medium having embodied thereon a computer program for the multicast data retransmission method of claim 6 ***(see Sato et al., Figure 5)***.

***Allowable Subject Matter***

7. **Claim 3** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

***Claim Rejections - 35 USC § 112***

Claim rejection under 35 USC 112 withdrawn in view of applicant's amendment filed April 28, 2008.

***Claim Rejections - 35 USC § 101***

Previous rejection under 35 USC 101 withdrawn in view of applicant's amendment filed April 28, 2008.

8. Applicant's arguments with respect to claims, 1, 2, 4, 6, 8 and 10 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MON CHERI S. DAVENPORT whose telephone number is (571)270-1803. The examiner can normally be reached on Monday - Friday 8:00 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin C. Harper/
Primary Examiner, Art Unit 2616

/Mon Cheri S Davenport/
Examiner, Art Unit 2616
July 14, 2008